

Notice of Allowability

Application No.

10/622,015

Examiner

Maureen M. Wallenhorst

Applicant(s)

COWLES ET AL.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received on June 8, 2007.
2. ☒ The allowed claim(s) is/are 35-37, 39-47, 53-54, 56-58, 60 (renumbered 1-18).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brandon Clark on June 18, 2007.

Withdrawn claims 1-34 and 48-52 were canceled.

On line 13 of claim 35, the phrase "and with an aqueous hydrofluoric acid" was changed to --and an aqueous hydrofluoric acid--. On line 37 of claim 35, the phrase "shield gas functional end" was changed to --shield gas functional line--.

Claim 53 was rewritten as follows:

--Claim 53: A system for sampling for at least one metal analyte in a halosilane supply, comprising:

- (a) a halosilane supply line to transport at least one halosilane having a formula $\text{Si}_u\text{Cl}_v\text{F}_w\text{Br}_x\text{I}_y\text{N}_z$, wherein u is 1 or 2; (v+w+x+y) is between 1 and 4+2(u-1), inclusive; each of v, w, x, and y is between 0 and 4+2(u-1), inclusive; z is between 0 and 2u+1; (v+w+x+y+z) is equal to 4+2(u-1); and each N is independently selected from the group consisting of hydrogen, methyl, methoxy, ethyl, ethoxy, propyl, propoxy, isopropyl, isopropoxy, n-butyl, butoxy, vinyl, and phenyl,
- (b) a sampling unit coupled with said halosilane supply line, wherein

Art Unit: 1743

(i) said sampling unit collects a first sample from the halosilane supply line, wherein the first sample comprises the halosilane; and contacts the first sample with an aqueous hydrofluoric acid solution, thereby producing a liquid reaction mixture, wherein at least one chemical reaction occurs as a result of the contacting step, wherein the chemical reaction comprises the halosilane reacting with the aqueous hydrofluoric acid, and

(ii) said sampling unit, comprises:
a sample introduction line to carry the first sample;
a shield gas supply line;
a shield gas functional line,
wherein the shield gas supply line and the shield gas functional line are to carry a shield gas,
wherein the shield gas functional line has a longitudinal axis that is parallel to the longitudinal axis of the sample introduction line, and the sample shield gas functional line jackets at least a portion of the sample introduction line,
wherein the jacketed portion of the sample introduction line comprises an open end and a continuing end, and
wherein the shield gas functional line comprises a first end that is sealed to the continuing end of the portion of the sample introduction line and an open end;
a connector that connects the shield gas supply line and the shield gas functional line, wherein the open end of the jacketed portion of the sample introduction line and the open end of the shield gas functional line are on the same side relative to the connector;
an impinger comprising a reaction vessel and the aqueous hydrofluoric acid solution therein,

Art Unit: 1743

wherein the open end of the shield gas functional line and the open end of the jacketed portion of the sample introduction line are positioned below the surface of the aqueous hydrofluoric acid solution, and

wherein the open end of the shield gas functional line and the open end of the sample introduction line are positioned relative to one another such that when the shield gas and the first sample are carried through the sampling unit, the shield gas is capable of shielding the first sample when the first sample is contacted with the aqueous hydrofluoric acid solution, thereby producing the liquid reaction mixture and at least one exhaust gas; an abatement line; and

an abatement unit comprising an abatement vessel and an aqueous caustic solution, wherein the abatement line is capable of carrying the exhaust gas from the impinger to the abatement unit. —

Claim 56 was rewritten as follows:

--Claim 56. A system, comprising:

(a) a processing tool to process workpieces,

(b) a halosilane supply line coupled to said processing tool, said halosilane supply line to supply at least one of trichlorosilane, dichlorosilane, tetrachlorosilane, and tetrafluorosilane for said processing of workpieces,

(c) a sampling unit coupled to the tool and halosilane supply line, wherein

(i) said sampling unit collects a first sample from the halosilane supply line, wherein the first sample comprises at least one of trichlorosilane, dichlorosilane, tetrachlorosilane, and tetrafluorosilane; and contacts the first sample with an aqueous hydrofluoric acid solution, thereby producing a liquid reaction mixture,

Art Unit: 1743

wherein at least one chemical reaction occurs as a result of the contacting step, wherein the chemical reaction comprises the halosilane reacting with the aqueous hydrofluoric acid, and

(ii) said sampling unit, comprises:

a sample introduction line to carry the first sample;

a shield gas supply line;

a shield gas functional line,

wherein the shield gas supply line and the shield gas functional line are to carry a shield gas, wherein the shield gas functional line has a longitudinal axis that is parallel to the longitudinal axis of the sample introduction line, and the sample shield gas functional line jackets at least a portion of the sample introduction line,

wherein the jacketed portion of the sample introduction line comprises an open end and a continuing end, and

wherein the shield gas functional line comprises a first end that is sealed to the continuing end of the portion of the sample introduction line and an open end;

a connector that connects the shield gas supply line and the shield gas functional line;

wherein the open end of the jacketed portion of the sample introduction line and the open end of the shield gas functional line are on the same side relative to the connector; and
an impinger comprising a reaction vessel and the aqueous hydrofluoric acid solution therein,

wherein the open end of the shield gas functional line and the open end of the jacketed portion of the sample introduction line are positioned below the surface of the aqueous hydrofluoric acid solution, and

Art Unit: 1743

wherein the open end of the shield gas functional line and the open end of the sample introduction line are positioned relative to one another such that when the shield gas and the first sample are carried through the sampling unit, the shield gas is capable of shielding the first sample when the first sample is contacted with the aqueous hydrofluoric acid solution, thereby producing the liquid reaction mixture. –

2. The following is an examiner's statement of reasons for allowance: Application serial no. 10/622,015 is being allowed since Applicants have provided evidence that the closest prior art, as represented by the publication to Cowles et al cited in the Office action mailed on December 8, 2006, was published on July 22, 2002, which is less than one year from the filing date of the instant application (i.e. July 17, 2003). Therefore, the publication to Cowles et al does not qualify as prior art under 35 USC 102(b) or 35 USC 102(a) since the publication has the same inventive entity as the instant application and was published less than one year from the filing date of the instant application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 1743

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen M. Wallenhorst whose telephone number is 571-272-1266. The examiner can normally be reached on Monday-Thursday from 6:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden, can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maureen M. Wallenhorst
Primary Examiner
Art Unit 1743

mmw

June 21, 2007

Maureen M. Wallenhorst
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PRIMARY EXAMINER
GROUP ~~100~~ 1700